

## **North Carolina Public Health Practice-Based Research Networks DACS 71131**

**Product Type:** Meeting and Conference Presentation

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**Title of Presentation:** *The Influence of Organizational and Community Characteristics on the Cost of Providing Mandated Public Health Services in North Carolina*

**Meeting:** 2014 North Carolina Public Health Association Fall Educational Conference

**Date:** September 17-19, 2014

**Location:** Wilmington, North Carolina



The influence of organizational and  
community characteristics on the  
cost of providing mandated public  
health services in North Carolina

*North Carolina Public Health  
Practice-Based Research Network*



# Specific Aims

- Estimate and validate the cost per unit of service for selected services mandated by NC statute (Administrative Code 10A NCAC 46.0201 – 0215);
- Construct a validated methodology for the estimation of service costs that can be readily implemented by finance staff at LHDs;
- Examine the influence of different delivery system structures such as single-county, multicounty district, public health authority, and consolidated human service agencies on the costs of delivering mandated and other essential public health services.

# Project Status

- Convened public health practice advisory group;
- Identified mandated health services for cost study;
- Obtained secondary data for all North Carolina local health department (LHD) environmental health services;
- Cleaned environmental health services data;
- Developed and finalized health services costing tool for primary data collection (based on SASCAP);
- Identified environmental health services time allocation measures based on North Carolina estimates;
- Recruited 16 LHDs to complete costing tool;
- Constructed data collection methodology for activity time log; and
- Conducted preliminary analyses of secondary data.

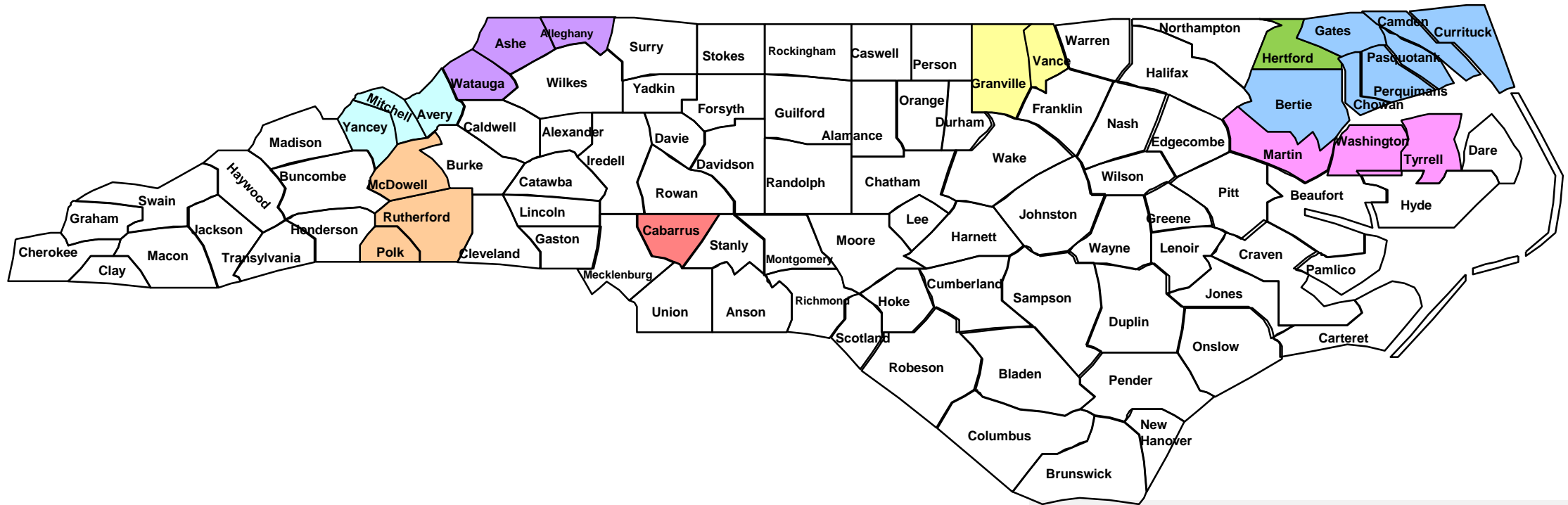


# North Carolina has 100 Independent Geo-Political Counties

North Carolinians have access to 100+ physical locations for local public health

*There are 85 Local Health Department Administrative Units (85 local health directors)*

*Including 1 Local Hospital Authority (pink), 1 Local Public Health Authority (green) and 6 Local Public Health Districts*



# Mandated services

Provide:	Provide/contract/certify:
Food, lodging & institutional sanitation	Adult health
Individual on-site water supply	Home health
Sanitary sewage collection, treatment & disposal	Dental public health
Communicable disease control	Grade-A milk sanitation
Vital records registration	Maternal health
	Child health
	Family planning
	Public health laboratory



# State Funding and Actual Cost for Mandated Services in One Local Health Department

## *Communicable Disease*

State Funding Provided: **\$31,595**  
Actual Program Cost GVDHD: **\$352,866**

## *Environmental Health*

State Funding Provided: **\$16,500**  
Actual Program Cost GVDHD **\$611,761**

## *Vital Records*

State Funding Provided: **\$0**  
Actual Program Cost GVDHD: **\$24,017**

*Granville-Vance District Health Department:  
Population across two counties: 110,000*





# Cost Estimation Methods

Three approaches:

1. Empirical modeling based approach
2. Resource based approach
3. Time log approach

# Empirical Modeling Based Approach

- Administrative data from NC DPH for 2008-2012:
  - Expenditures, staffing, service counts – collected from three separate systems;
  - Sample includes all 85 LHDs (100 counties) in NC.
- Provides a measure of resource use for core services; will allow us to investigate the influence of organization and community level factors on LHDs' production cost function

# Resource Based Approach

- Primary data collected through a modified version of the SASCAP instrument;
  - Data includes production inputs, such as personnel, supplies, overhead;
  - Sample includes 16 LHDs (chosen using a stratified random sample to ensure representativeness)
  - LHDs stratified by economic tier and geographic location.

# Time Log Approach

- Will use primary data collected through activity logs;
- Will develop cost estimates for one mandated public health service
- Sample will include 4 volunteer LHDs that also participate in resource based approach

# Methods and Status

**Table 1. Summary of Methods**

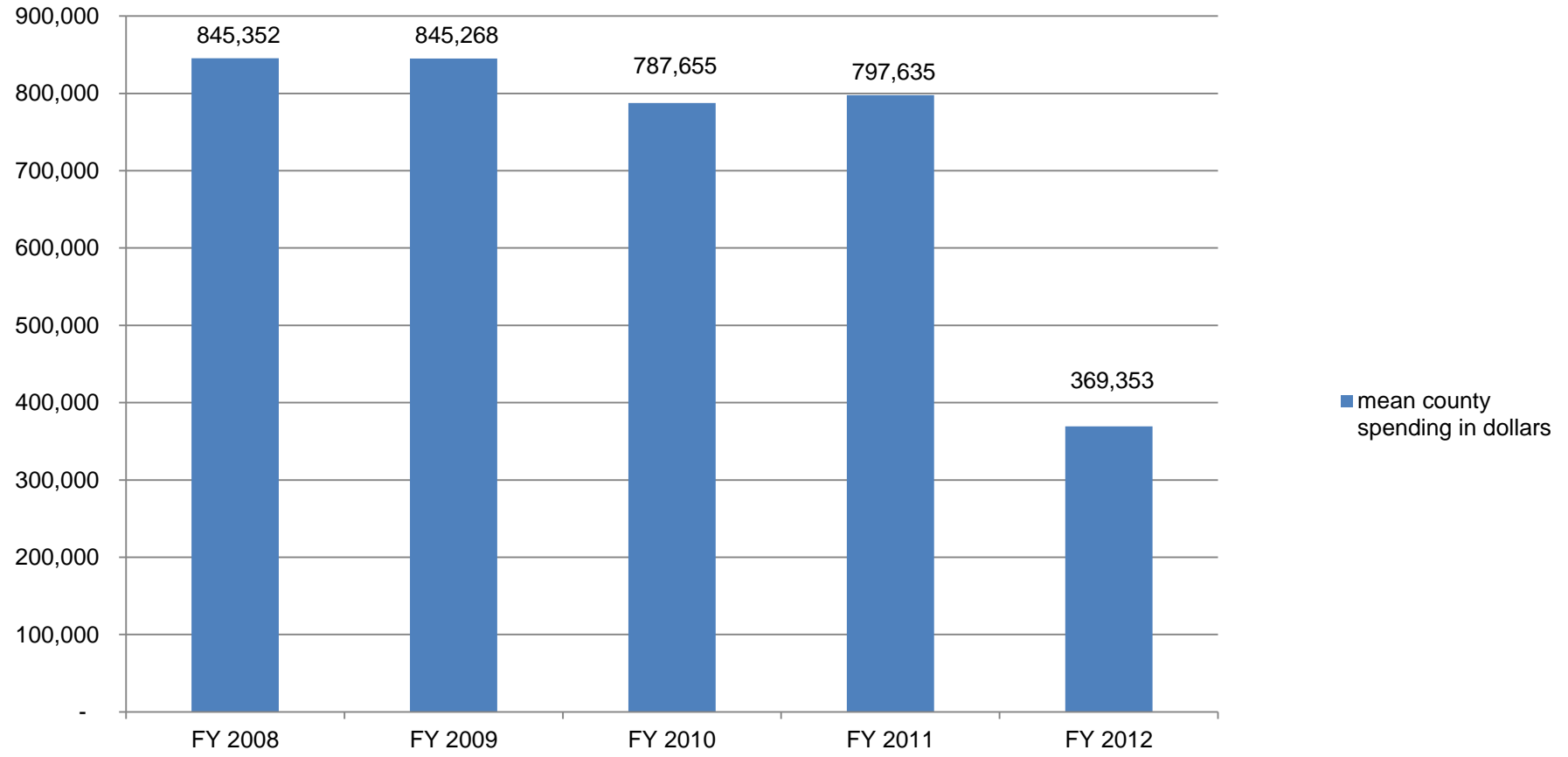
<b>Costing Method</b>	<b>Data Collection Method</b>	<b>Sample Size</b>	<b>Comments</b>
Empirical (5 years of data)	Administrative data	All 100 counties; 2 mandated services	Collected, cleaned, and conducted preliminary analyses
Resource-Based	Key informant input, administrative data	16 LHDs, 2 mandated services	Data collection in progress
Time Log	Direct observation or activity logs supplemented with administrative data	4 LHDs, 2 mandated services	Data collection scheduled for September 2014

# PRELIMINARY RESULTS

## Average Spending and Number of Services for All Years

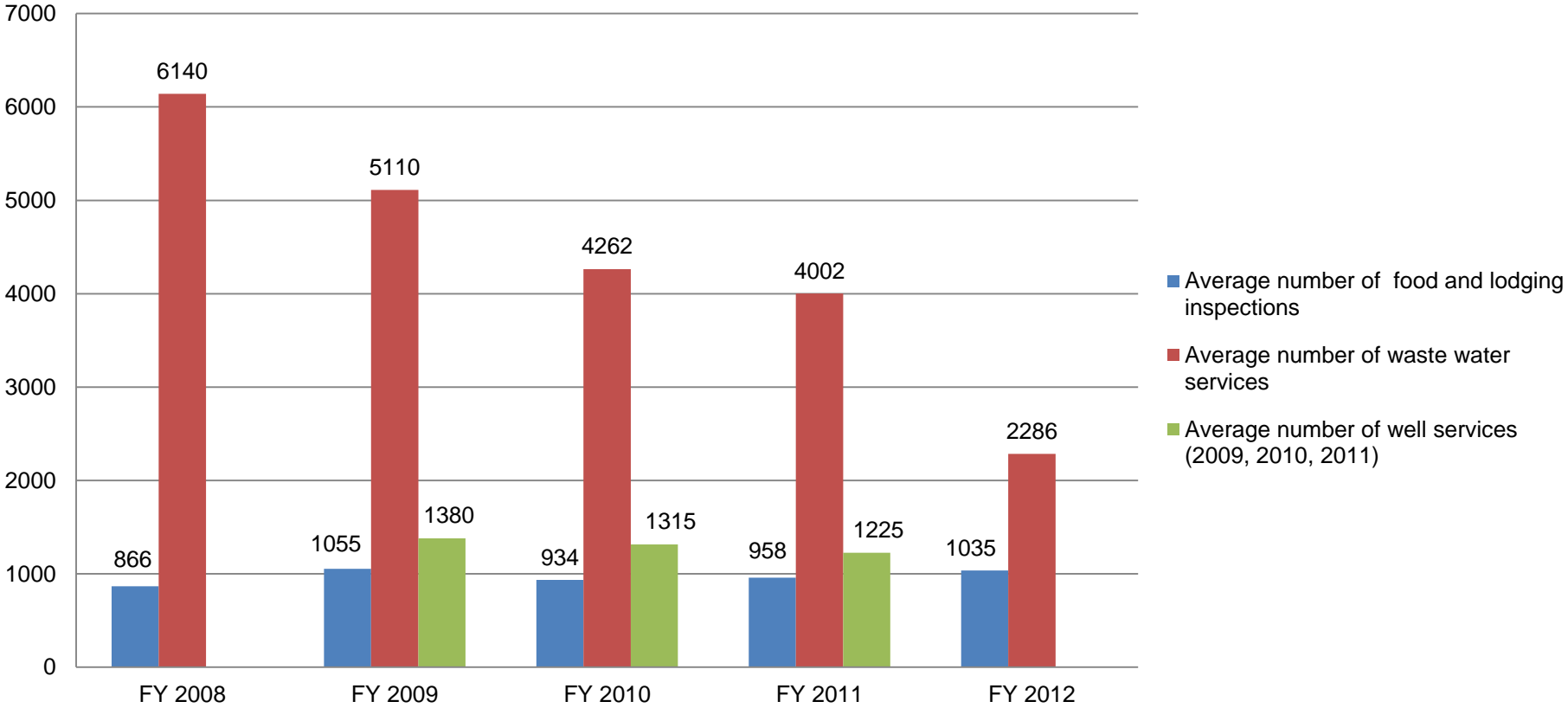


### Average County Spending on Environmental Health by Year

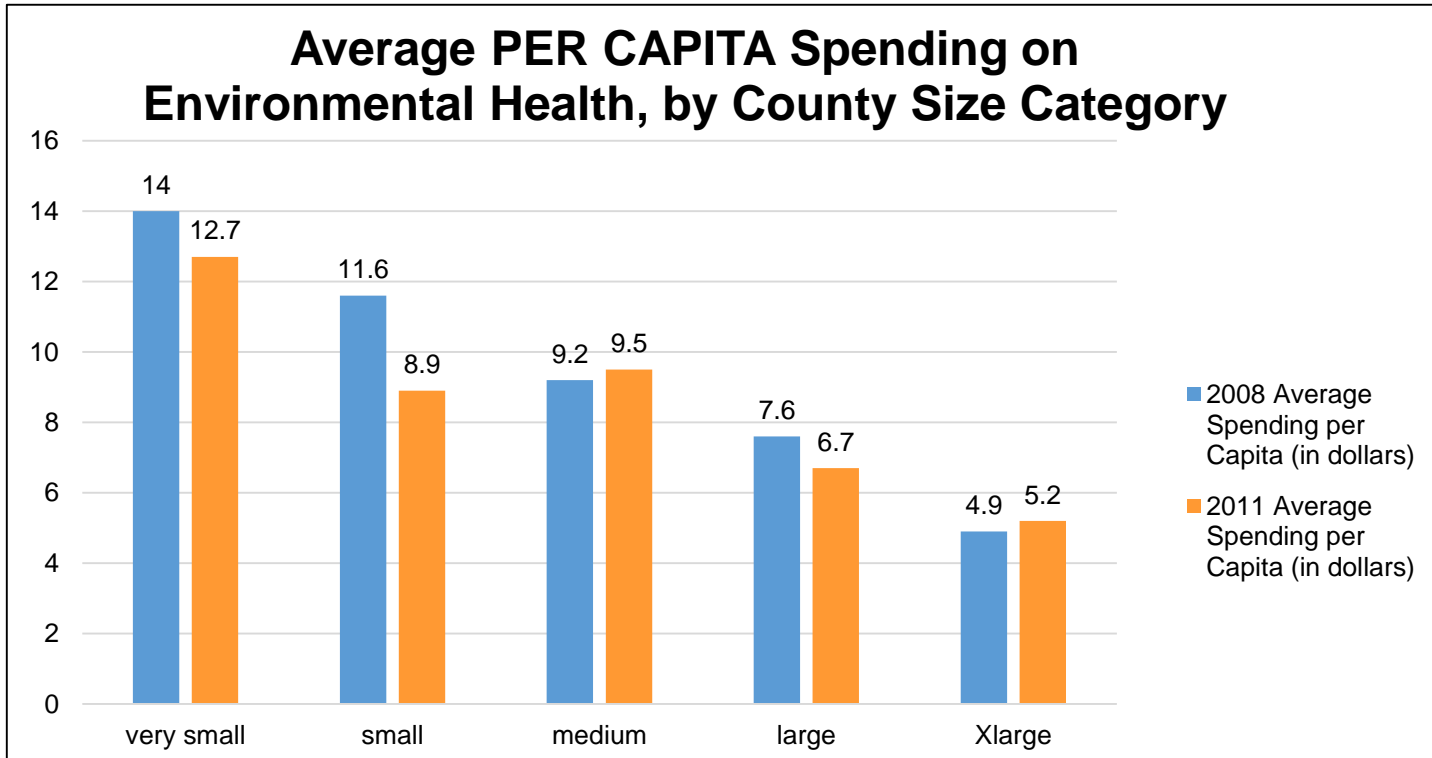




### Average Number of Services Provided, by Year

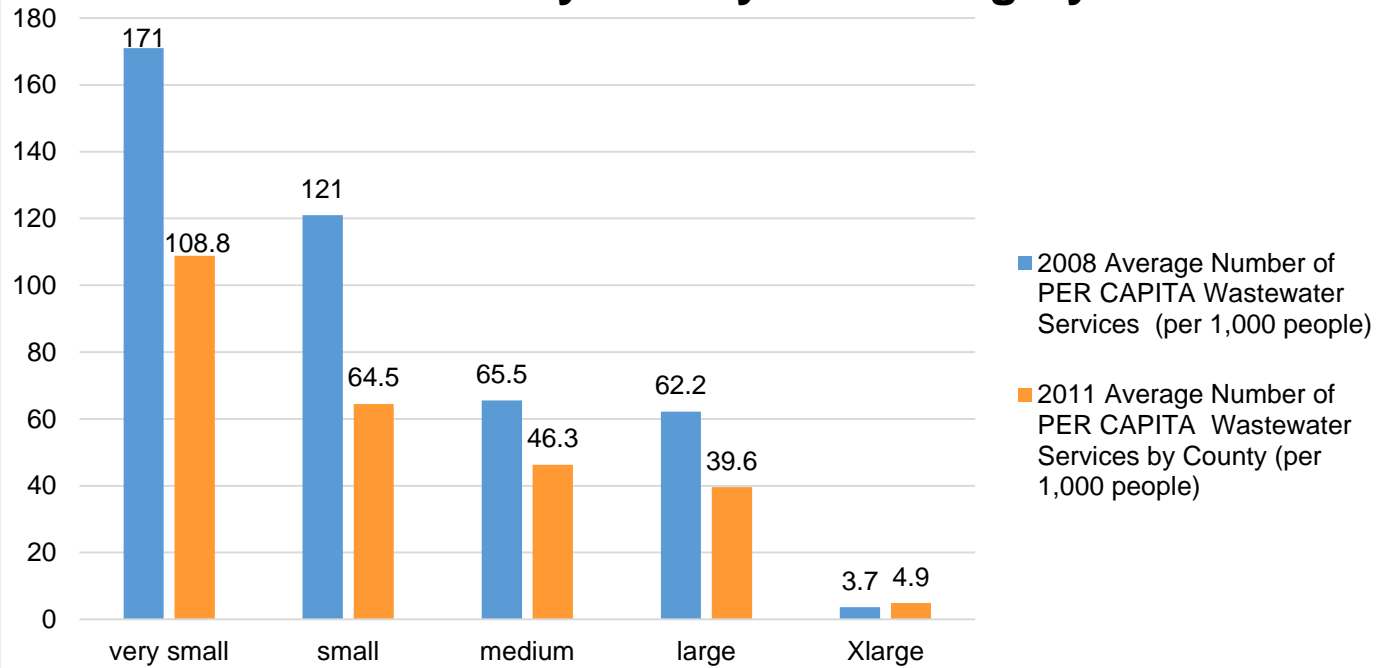


County Size Category	2008 Average Spending Per Capita (in dollars)	2011 Average Spending Per Capita (in dollars)
very small (under 20K)	14.0	12.7
small (20K - 50K)	11.6	8.9
medium (50K - 100K)	9.2	9.5
large (100K-500K)	7.6	6.7
Xlarge (over 500K)	4.9	5.2



County Size Category	2008 Average Number of PER CAPITA Wastewater Services (per 1,000 people)	2011 Average Number of PER CAPITA Wastewater Services by County (per 1,000 people)
very small (under 20K)	171	108.8
small (20K - 50K)	121	64.5
medium (50K-100K)	65.5	46.3
large (100K-500K)	62.2	39.6
Xlarge (over 500K)	3.7	4.9

### Average Number of PER CAPITA Wastewater Services by County Size Category



# Thank You!

- ***Core PBRN Team***

- Nancy Winterbauer (Co-PI) ECU
- Lisa Macon Harrison (Co-PI) GVDHD
- Simone Singh, healthcare finance expert, University of Michigan
- Katherine Jones, Research Scientist, ECU
- Ashley Tucker, Research Associate, ECU
- Patrick Bernet, healthcare finance expert, Florida Atlantic University

- ***Advisory Committee***

- Local Health Departments (LHD): Sue Lynn Ledford, Colleen Bridger, and Amy Belflower Thomas
- NC Division of Public Health (DPH): Joy Reed
- UNC-Chapel Hill: Jill Moore (SOG) and Dorothy Cilenti (NCIPH)

